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OF

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AND REFLEX CONTRACTION;

ILLUSTRATING VARIETIES OF

CHRONIC FUNCTIONAL TONIC SPASM.

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MEDICINE IN THE ALBANY MEDICAL COLLEGE.

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***CASES OF TETANY, HYSTERICAL CONTRACTION,
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CASES of tetany in the adult, although they are not very commonly met with, yet present themselves in a great variety of forms, both in regard to the number and distribution of the muscles involved and in the duration of the contraction. The following case is remarkable in that the muscular spasm was so continuous (lasting many months) and involved the muscles of the body so generally:

CASE I.—M. H., twenty-six years of age, single, a seamstress, entered St. Peter's Hospital July 8, 1887. She had always been healthy till the first part of September, 1886, when, while menstruating, she was holding horses in the rain, and in trying to shelter a little girl, who was with her in the wagon, she, herself, became thoroughly drenched with rain. Almost immediately after this exposure her right hand felt stiff. This abnormal feeling in her hand continued, and two weeks later the muscles of the calf of the

legs became cramped and hard, continuing so for about half an hour, during which time she was unable to stand. The next day the spasms returned, and, subsequently, they recurred more and more frequently and attacked the arms also, and, finally, involved all the muscles of the body. These spasms have, from the first, presented an intermittent character, but during the past six or eight months, even in the intervals of the spasms, the muscles do not completely relax but continue stiff. At times, especially when in bed in the morning, she thinks that she is perfectly well, but very soon the rigidity comes on. The acute attacks of spasm are usually confined to her arms and legs, but on several occasions the muscles of respiration have been slightly involved. She has no pain in any part of her body, although the acute attacks of spasm are somewhat painful. She always feels very hot, and even in the coldest weather likes to sit without any extra clothing by an open window.

The patient seems to be weak-minded and childish, but does not appear to be hysterical. At all times, even when asleep, all the muscles, except those of the face, are in a condition of tonic spasm, so that each one feels hard and the outline of each is sharply defined, as though faradized by a strong current. This is true not only of the muscles of the arms and legs but also of the cervical, thoracic, abdominal, and dorsal muscles. The muscles offer considerable resistance to passive extension, but the patient can use her limbs slowly; she walks on tip-toe, the feet are firmly held in the position of talipes equinus, and the hands

are firmly held in a position half "clawed" and half "obstetric" and at times are held rigidly so by an acute attack of spasm. Such spasms can be induced by firm and constant pressure applied just below the axilla over the course of the vessels and nerves, and when such pressure is applied, the patient first complains that her hand is cold and then the spasm comes on. Pressure on the ulnar nerve behind the elbow does not produce the spasm. The facial nerve does not show any exaggerated irritability to mechanical excitation. The superficial and deep reflexes seem to be normal, but the constant spasm interferes with their full development, and the same spasm prevents any satisfactory electrical examination. Absolutely no disturbance of tactile, painful, or thermic sensibility can be detected. No ovarian or spinal tenderness.

The patient remained in the hospital until March 24, 1888. Once she was etherized, which caused a complete relaxation of the muscular contraction, and, when in this condition, her joints were moved freely in all directions. The attacks of acute spasm became less and less frequent, and, finally, ceased entirely, but the tonic contraction continued unchanged. She continued to act in a childish manner and had one or two brief attacks of insanity. Hot baths seemed to produce some relaxation of the muscular contraction at first, but she obtained most relief by being in a very cold room and having but little clothing. Tonics, bromide of potassium, hyoscyamine and other remedies which were tried produced no good effect.

REMARKS.—Notwithstanding the fact that in the medical literature to which I have access I have not found any description of a case of tetany in which the muscular spasm continued persistently for weeks and months, yet this case, it seems to me, must be regarded as a case of tetany. In the early part of its course it presented the intermittent form of symmetrically distributed spasm so typical of tetany, and, although later, the muscular contractions became continuous, and during the nine months that the patient was under observation, in the hospital, all her muscles, except those of the face, were so strongly contracted that the contour of every superficial muscle stood out as plainly as in an anatomical dissection, yet even while the muscles were thus continuously contracted, spasms of even more severe and painful muscular contractions occurred at long intervals, and could be at any time induced in the arms by pressure on the nerves and vessels together, but not by pressure on the ulnar nerve alone, and the facial nerve did not show that increased excitability to mechanical irritation which it usually shows in cases of tetany.

The feeling of heat from which the patient constantly suffered, and on account of which she always wished to be in a very cold room, might well be the result of the widespread, strong and constant muscular contraction; and yet, in spite of this constant, excessive muscular contraction, the patient still retained voluntary power over her muscles, and was able to execute a great variety of movements, albeit slowly and with difficulty. This fact, that the

patient retained the power of voluntary motion indicates that the lesion or functional disturbance involved the gray matter of the subcortical centres rather than that of the cerebral cortex. The spasm, indeed, was not unlike that which might result reflexly in consequence of some powerful irritation; but no such irritation could be found, and the administration of anthelmintics resulted in no evidence of the presence of intestinal parasites.

If the diagnosis of tetany is correct, the case seems to be one of rheumatic tetany, inasmuch as a severe exposure to rain was the apparent cause of the disease. Usually cases of tetany are easily amenable to treatment, but this case showed no improvement during the time that the patient was in the hospital. The case might, perhaps, be regarded as one of hysterical contraction; and, I think, that it may be instructive to compare it with a case of hysterical contracture which was almost as widespread and was of even longer duration.

CASE II.—B. B., twenty-five years of age, single, entered St. Peter's Hospital April 27, 1886. Patient's family history good. Eight years ago she had an attack which was pronounced hip disease, and was under treatment for one year and a half. She recovered quite suddenly and was able to walk with some difficulty. About two years ago she was attacked by a pain in her hip which seemed to draw her knees up, and when she attempted to walk she could only do so on her toes. It was pronounced curvature of the spine by the physician and a plaster jacket was applied, but afforded no relief. Attempts

were made to straighten her legs by placing a padded board heavily weighted across her knees. About two months after the removal of the jacket she had a severe pain in her back, which extended up the spine to the base of the skull. Blisters were applied which afforded some relief, and she was able to sit up and move about the room. Since then she has had five similar attacks, and has been bed-ridden. About one year from date of the first attack she began having spasms at short intervals and was unable to take any medicine. The date of the last spasm was about four months ago. Patient complains of loss of sleep and appetite, and also that if she tries to swallow liquid of any kind it runs from her mouth before she can swallow it. During the past two weeks she has taken no food of any sort, as far as can be ascertained. She takes milk in her mouth but seems unable to swallow it. Bowels are constipated. Takes cracked ice freely. Lies in a fixed position and cannot make any movement except with her arms, and they act only imperfectly.

Her legs and thighs are flexed so that the heels almost touch the buttocks. The outlines of the muscles are not visible, and the muscles do not feel hard and contracted unless an effort is made to extend them. By steady traction the legs can be extended, but it is difficult to extend the thighs on the body. The arms are not held in any fixed position, but the head is drawn so far to the right that it almost touches the right shoulder. A couple of days ago there was no particular anæsthesia of the hands or arms, but there was of the legs. To-day there is

almost complete anæsthesia and analgesia of both the arms and the legs. When the legs are extended they become flexed again very gradually ; and when her attention is diverted they remain extended for some time. Abdomen is much retracted. There is no ovarian tenderness on either side. Extremities cold. Pulse small and rapid.

A few drops of a four per cent. solution of cocaine were dropped into her mouth, after which with some difficulty she managed to swallow a pint of milk. After that she took milk freely, each cupful being preceded by a few drops of the cocaine solution, and a week later she began to take solid food and the cocaine was stopped. At this time she had incontinence of urine and feces and was almost constantly soiled. Her legs, which were completely anæsthetic and analgesic, were straightened by passive motion several times daily, each time causing much pain in her back.

In the middle of May, her general condition having improved somewhat, the daily application of electricity to her legs was commenced, the faradic current being used because it was found to produce a more decided effect on the muscles than the galvanic current. In less than a week the electricity had produced great improvement, sensibility in all its forms had returned completely in the legs, she was herself able to extend her legs almost completely, and the incontinence of urine and feces ceased. She was able to sit up in a rocking chair, but her head continued to be strongly drawn to the right, and she insisted that one leg was shorter than

the other, although the apparent shortening was evidently due to a drawing up of the pelvis on that side. The electricity was now applied exclusively to the neck and hip, and at the same time she was confidently assured that the electricity would lengthen her leg; with the result that three days later she could move her head freely in all directions, and the legs were apparently and actually of the same length. By the end of May she was able to walk about without assistance, and on June 6th she was discharged well.

July, 1888. I have seen the patient at intervals during the past two years and she has continued perfectly well.

REMARKS.—In this case the spasm, though widespread, was not nearly so general as in the case of tetany; the muscles of the arms and body not being affected and the muscles of the neck being contracted on one side only, such unilateral spasm being common in hysteria and never occurring in tetany. The character of the muscular contraction was altogether different in the two cases; in the case of tetany the muscles were hard and clearly defined and evidently at all times firmly contracted, while in the case of hysteria the muscles felt soft and were apparently scarcely contracted at all unless an effort was made to extend them. The contraction seemed rather to be a voluntary one, which was only made when it was necessary in order to keep her limbs in the fixed position. In the case of tetany, notwithstanding the muscular spasm, the patient was able to move her limbs, although slowly and with difficulty;

while in the case of hysteria, as is usual in such cases, with the spasm was combined an apparent muscular paralysis. In the second case there was a history of previous attacks of various kinds with sudden recoveries, and there were also disturbances in sensibility and in the organic reflexes which disappeared with great rapidity under treatment.

Very characteristic, furthermore, was the deportment of the two women. In the case of tetany the patient was a naturally acting woman, although of weak intellect; but in this last case, as well as in the case of the boy presently to be described, there was a certain attempt to produce a theatrical effect which is hard to describe but is easily recognized. The whole attitude of the patients seemed to demand sympathy, and at the same time it was evident that they were watching most intently every action of the physician and attendants.

One of the fixed ideas which the hysterical patient cherished the longest, was that one of her legs was shorter than the other, and it required a very decided assurance that the shortening would disappear under the use of strong electric currents, before she abandoned that idea. Such localized muscular spasms are common in hysterical subjects and not infrequently give rise to errors in diagnosis, and such spasms also occur in persons with irritable nervous systems, apparently as the result of some peripheral irritation, in which case they have been called reflex spasms. The following case may serve as an illustration of errors of diagnosis from such reflex spasm.

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stand very plainly that the doctors understood his case and that he would not be able to deceive them again, and the moral effect of this might have had quite as much to do with preventing further attacks as had the circumcision; and, certainly, after the last etherization there was no return of the spasm during the month which elapsed before he was circumcised. There are, however, many cases of spasmodic and convulsive attacks in "nervous" children, which are relieved by removing or freeing an adherent prepuce, and in which the cure can hardly be explained by any moral effect of the operation, but seems to be due to the removal of the irritation.

The three cases described above all probably depend upon some alteration in the central nervous organs; but the alteration, if it exists, has not, as yet, been detected, and they must be considered as examples of functional spasm. Organic diseases of the motor tract in the central nervous organs may give rise to continuous tonic spasms, which are usually confined to one limb or to one side of the body; and tonic spasms of a transitory character occur in the "occupation neuroses" and in other forms of nervous disease; but it is probable that all forms of chronic functional tonic spasm are varieties either of tetany or of hysterical contraction, or of reflex contraction.